

PzKpfw VI Tiger I
and Tiger II ("King Tiger")

by Peter Chamberlain and Chris Ellis



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Tiger company in the Tarnopol area of the Ukraine, spring 1944. Note reserve fuel drums roped to the hull of each tank. (Imperial War Museum)

Panzerkampfwagen VI Tiger Ausf. H (E) and Tiger Ausf. B

by Peter Chamberlain and Chris Ellis

PART ONE

Tiger I (Ausf. H later Ausf. E)

“At half-past five the next morning the advance continued through Briquessard and Amaye-sur-Seulles. Villers Bocage was entered without incident, although the 11th Hussars and 8th Hussars had both contacted the enemy on either side of the centre-line. ‘A’ Squadron of the 4th County of London Yeomanry and ‘A’ Coy. of the 1st Rifle Brigade then pushed on according to plan towards the high ground to the north-east of the town. In order to clear the traffic on the roads behind, the column had to move out comparatively closed up, and it was this that gave a Mk. VI tank, which suddenly appeared from a side road, its opportunity. Its first shot destroyed one of the Rifle Brigade half-tracks, thus blocking the road; and then at its own convenience it destroyed the remainder of the half-tracks, some Honey tanks of the Recce Troop, four tanks of the Regimental Headquarters troop and the two OP tanks accompanying the squadron. Escape for the tanks, carriers and half-tracks was impossible; the road was embanked, obscured by flames and smoke from the burning vehicles whose crews could only seek what shelter they could from the machine-gun fire, and our own tanks were powerless against the armour of the Tiger, with limitless cover at its disposal. Meanwhile ‘A’ Squadron, in the lead with the Commanding Officer, were cut off. Their last radio message, received at half-past ten, reported that they were completely surrounded by tanks and infantry, that the position was untenable and withdrawal impossible. Relief was equally impossible as, in addition to the burning tanks and vehicles, the road was blocked by the same Mk. VI which commanded all approaches.”

(A Short History of 7th Armoured Division; Sept. 1945.)



A late production Tiger Ausf. E on the Russian front, summer 1944; note episcoped cupola and "Zimmerit" anti-magnetic plaster ripple coating. (Chamberlain Collection)

THUS wrote the official historian of one of the most outstanding individual tank actions of the Second World War, an exploit which almost made a legend of the man who held up an entire armoured division—the famous "Desert Rats"—and contributed not insignificantly to the events which followed. Obersturmführer-SS Michel Wittmann was the commander of the Tiger tank which caused the carnage at Hill 213 on the road from Villers Bocage during the battle for Normandy. The date was June 13, 1944. The British 7th Armoured Division, having outflanked Bayerlein's *Panzer Lehr* Division which had been thrown into the offensive towards Bayeux, was running for Caen as part of an overall plan to take the city by a "right hook" round the defenders when the leading echelon ran into No. 2 Company of 501 *Waffen-SS* Heavy Tank Battalion, commanded by Wittmann. At the moment of contact Wittmann's Tigers were concealed in a wood on Hill 213, with his own vehicle nearest the road and thus best able to bear on the approaching British column. In the engagement which followed and which has been described above, Wittmann knocked out 25 vehicles to add to his massive score of 119 Soviet tanks destroyed during his service on the Russian Front.

Though this was but one short action, it stands as a classic; and immortalises the Tiger I as one of the milestones in the evolution of the tank. Few would claim it as the best tank of all time, nor for the

Germans was it the right tank at the right time; but it showed the way to the Panther and Tiger II which went a long way towards making up in firepower and effectiveness for the numerical deficiency in armour with which the *Wehrmacht* had to face the Allies in the closing stages of the Second World War.

THE TIGER PEDIGREE

The Tiger series had its origins in a number of tank developments initiated in 1937. In that year the firm of *Henschel u. Sohn GmbH* of Kassel were instructed to design and construct a 30–33 ton tank intended to replace the early Panzer IV tanks, the vehicle being known as the DW.1 (DW was an abbreviation of *Durchbruchswagen* or "breakthrough vehicle"). However, after one chassis with interleaved road wheel suspension had been built and testing had commenced, the trials were suspended in 1938 to allow work to be carried out on a further design for a 65 ton tank, the VK.6501* (*Vollkettenkraftfahrzeug*—"fully tracked experimental vehicle, 65 tons, first design"). The VK.6501 was itself a further development of the PzKpfw VI (NbFz PzKpfw VI; NbFz for *Neubaufahrzeug*—"new construction vehicle" of 1934, a multi-turret design of which only a few were pro-

*Also known as the SW (Sturmwagen "assault vehicle") or PzKpfw VII.

duced). Two prototypes of the VK.6501 were built and were undergoing trials when this project was cancelled and development resumed on the DW.1. By 1940, Henschel had so improved the original design that it was renamed DW.2; in this form it weighed 32 tons and accommodated a crew of five. The planned armament was the short 7.5 cm. gun with two Model 34 machine-guns. Trials were carried out with a prototype chassis until 1941, by which time Henschel had received an order for a new design in the same class and weight as the DW.2, the development code for the new vehicle being VK.3001. This order was also given to Henschel's competitors, Porsche, MAN and Daimler-Benz. The Henschel version, VK.3001(H), was a development of the DW.2; four prototypes were built, differing only in detail from one another, two in March 1941 and two the following October. The superstructure of the VK.3001(H) resembled the PzKpfw IV, and the suspension consisted of seven interleaved road wheels and three return rollers per side. It was planned to mount the 7.5 cm. L/48 gun in this vehicle; but due to the appearance of the Russian T34 with its 76 mm. gun, the vehicle became obsolete and development was discontinued. Two of the VK.3001(H) chassis were, however, converted to self-propelled guns by lengthening and fitting a lightly armoured superstructure, and mounting a 12.8 cm. K.40 gun. These two vehicles were used in Russia in 1942. The Porsche version, VK.3001(P), was also known to its designers as the Leopard or *Typ 100*. This turretless prototype incorporated several new design features such as petrol-electric drive and longitudinal torsion bar suspension. MAN and Daimler-Benz also constructed prototypes to this design but like the Henschel project they had become obsolete.

Concurrently with the order for the VK.3001 an

additional order had also been placed in 1941 for a 36 ton tank designated VK.3601. The specification for this design had been proposed by Hitler; it included a powerful high velocity gun, heavy armour, and a maximum speed of at least 40 km./h. A prototype of this project was built by Henschel in March 1942, but experimental work on both the VK.3001 and VK.3601 was stopped when a further order for a 45 ton tank was received in May 1941. Designated VK.4501, the vehicle was proposed to mount a tank version of the 8.8 cm. gun. With the order came a stipulation that the prototype was to be ready in time for Hitler's birthday on April 20, 1942, when a full demonstration of its capabilities was to be staged. As design time was limited, Henschel's decided to incorporate the best features of their VK.3001(H) and VK.3601(H) projects into a vehicle of the weight and class required. Henschel planned to build two models, the type H1 mounting an 8.8 cm. 36 L/56 and the type H2 a 7.5 cm. KwK L/70, although the H2 existed only as a wooden mock-up at that time. Porsche had also received the order for the VK.4501 and like Henschel they decided to use the experience and features from their previous model, the VK.3001(P), which had performed well on trials.

The demonstration of the two competing prototypes, the VK.4501(H) and VK.4501(P) type 101, duly took place before Hitler at Rastenburg on April 20. The Henschel design was judged to be superior. An order for production to commence in August 1942 was given and the vehicle was designated *Panzerkampfwagen VI Tiger Ausf. H*; the *Sonderkraftfahrzeug*, or Ordnance Number was SdKfz 181. In February 1944 the designation was changed to *PzKpfw Tiger Ausf. E*, SdKfz 181.

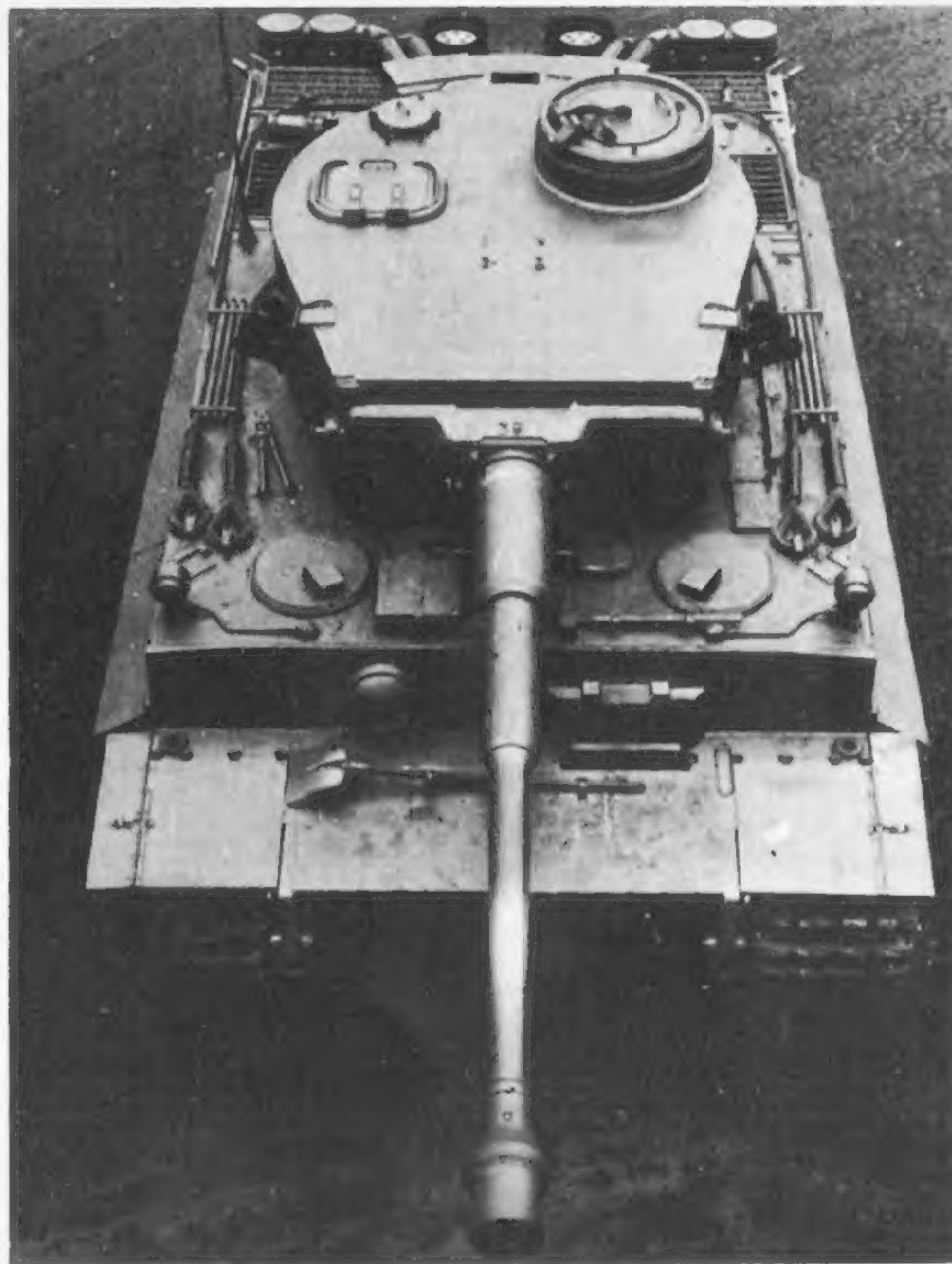
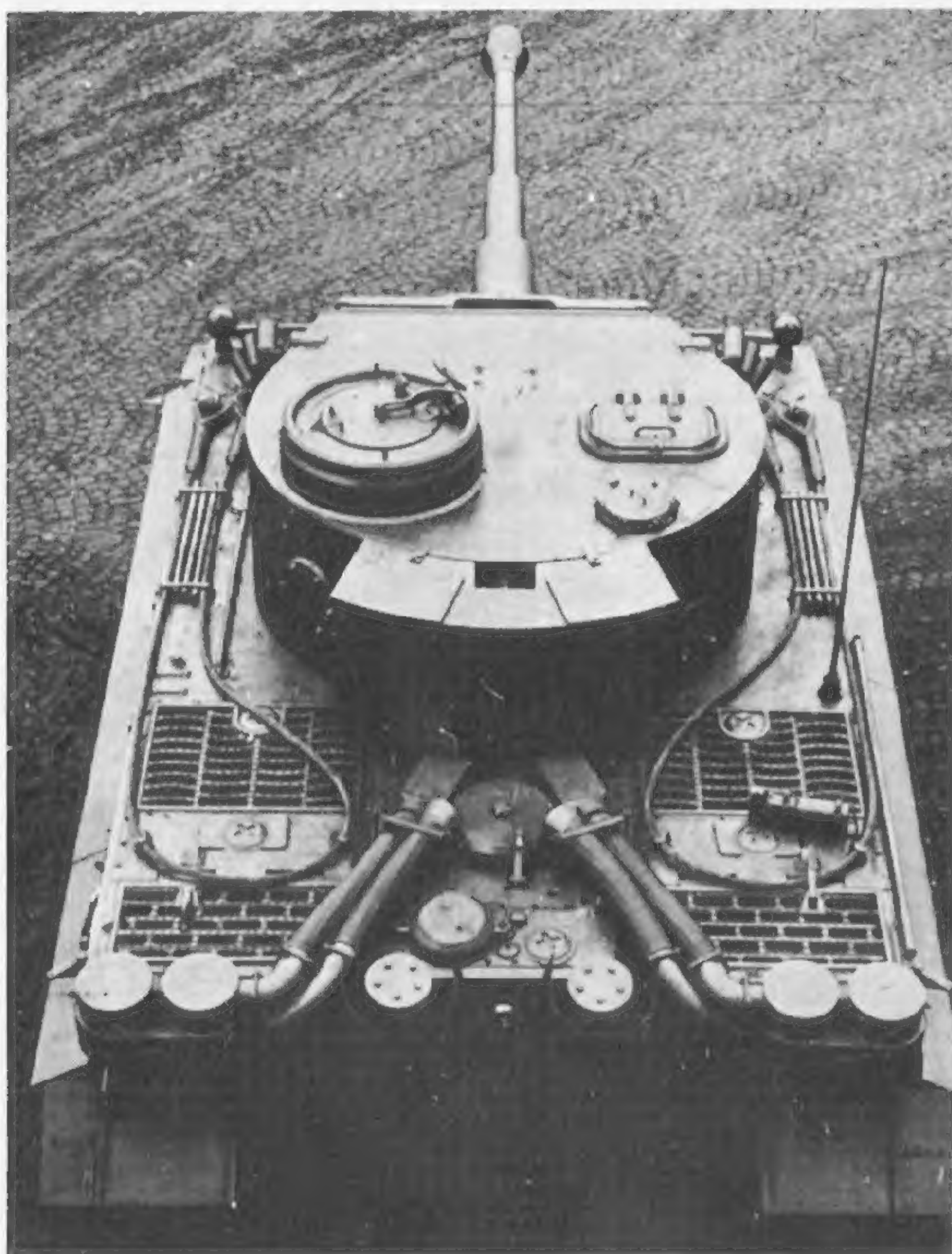
Several production modifications—a new cupola, new-type wheels, and simplified fittings—appeared to

(Top right) Early progenitor of Henschel's Tiger Ausf. E (originally Ausf. H) was the 30-ton VK.3001 project. This is one of four prototypes built by Henschel in 1941. (Chamberlain Collection/Col. R. J. Icks)

(Bottom right) Porsche's rival prototype for the VK.4501 requirement seen on test at Rastenburg. Only two vehicles were completed with turrets. (Chamberlain Collection/Col. R. J. Icks)

(Below) Henschel's VK.3601(H) prototype for a 36-ton tank specified by Hitler in 1941. It was followed by VK.4501(H), the Tiger prototype demonstrated to Hitler on April 20, 1942. (Chamberlain Collection/Col. R. J. Icks)





"Feifel" air cleaning system at rear, plain cylindrical cupola, and rubber-tyred road wheels are hallmarks of the early production Tiger Ausf. H. These three views show the standard equipment stowage for this vehicle including tow-cables each side, gun cleaning rods each side of turret, tools, and turret bin. The holes just ahead of the vertical front plate are for camouflage support stanchions; the tube on the right side aft is for radio aerial stowage. This vehicle has brackets for "S"-mine dischargers at each corner of the hull top and immediately ahead of the engine decking. (Chamberlain Collection)

coincide with the change of designation to Tiger Ausf. E, though no official confirmation of this has been found.

The Tiger was in production for two years, from August 1942 until August 1944, and in this period a total of 1,350 vehicles were delivered out of 1,376 ordered. Chassis numbers ran in a continuous series from 250001 to 251350. Maximum monthly production was achieved in April 1944, when 104 Tigers were built. It is interesting to note that the specified weight of 45 tons was exceeded in production by as much as 11 tons.

THE PORSCHE MODEL

Production of the Porsche VK.4501 design had been ordered before the trials as a safeguard against the failure of the Henschel design. As 90 vehicles were already in hand when the result of the trials was announced, it was decided to utilise the chassis as the basis of a self-propelled carriage for the 8.8 cm. L/71 gun. This equipment was designated *Panzerjäger Tiger (P) Ferdinand* SdKfz 184; it was subsequently redesignated 8.8 cm. 43/2 L/71 Ausf. Pz Jäg Tiger (P) *Elefant früher Ferdinand*. The original name "Ferdinand" had been adopted in honour of the designer, Dr. Ferdinand Porsche. Only two of the VK.4501 Porsche vehicles had actually been completed as tanks and in this form they had been designated *PzKpfw VI VK.4501(P), Tiger(P)*. Two other variants of the Porsche Tiger were projected but never materialised. These were a *Ramm-Tiger*, or "dozer-tank", ordered for production by Hitler and visualised for street-fighting and ramming enemy tanks; and a converted Porsche chassis designed to mount a 21 cm. mortar.

THE HENSCHEL TIGER DESCRIBED

At the time of its arrival in service in late 1942, the *PzKpfw VI Tiger I Ausf. H* was an outstanding design among its contemporaries by virtue of its powerful gun and armour protection up to 100 mm. thick. These factors made the 56 ton Tiger the most formidable fighting vehicle then in service. It was, however, relatively costly to produce in terms of man-hours and difficult to adapt for mass production. In January 1944 the heavier and generally superior *Tiger II Ausf. B* went into production with the result that successively fewer E models were produced until they were finally phased out of production completely in August 1944.

Tiger I was the first German combat tank to be fitted with overlapping road wheel suspension, arranged with triple overlapping and interleaved wheels of a steel disc type with solid rubber tyres (although after chassis number 250822 these discs were steel-tired and internally sprung). The overlapping wheel system was adopted for optimum weight distribution. There were eight independently sprung torsion bar axles on each side. In order to carry all the axles inside the hull envelope it was necessary to stagger them on the floor so that the right hand axles trailed aft and the left hand axles led forward. It was thus possible to incorporate the maximum number within the vehicle's length, and this resulted in an extremely soft and stable ride for a tank of this weight and size. Two types of track were used; a wide type

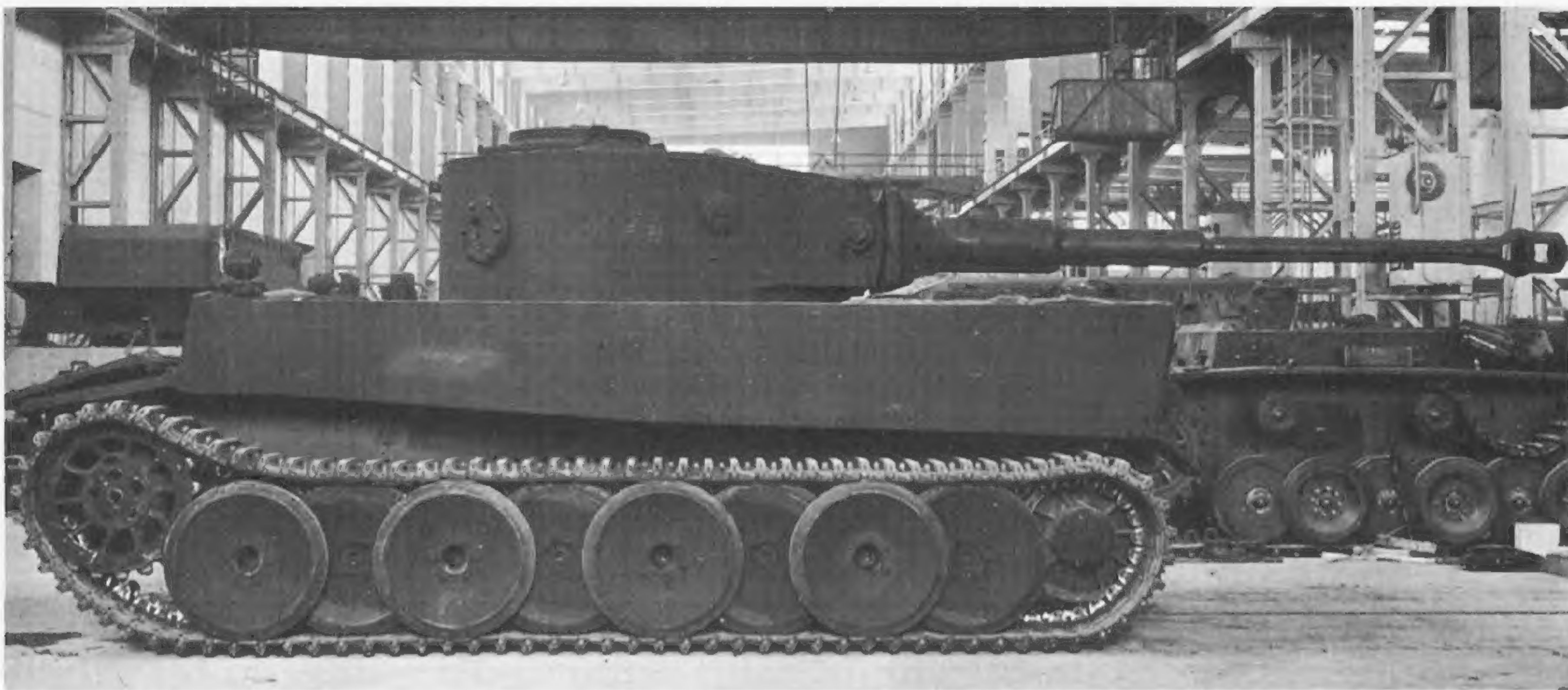
measuring 28½ inches was fitted for combat and narrow, 20½ inches wide, for travel and transportation. When the narrow tracks were fitted the outer wheels were removed from each suspension unit. Though this type of suspension gave a superior ride, it also had its drawbacks; one being that the interleaved road wheels were liable to become packed with mud and snow during winter fighting, and if ignored until frozen this could jam the wheels. The Russians discovered this and took advantage of the situation by timing their attacks for dawn when the vehicles were likely to have become immobilised.

The Tiger was originally fitted with a Maybach V-12 petrol engine, the HL 210 P45 of 21 litres capacity, but it was soon realised that the vehicle was underpowered and, from December 1943, the HL 230 P45 of 24 litres was substituted. The Tigers used in North Africa were fitted with an air cleaner system called *Feifel*. This was attached to the rear of the hull and linked to the engine by means of the engine cover plate. These tropical Tigers were known as the *Tiger (Tp)*. The *Feifel* air system was discontinued on vehicles built after the cessation of fighting in Tunisia in early 1943.

While all earlier designs of German tank had the simple clutch-and-brake type of steering, the Tiger's greatly increased weight necessitated a more refined system. Henschel therefore developed and adopted a special steering unit, similar to the British Merritt-Brown type, which was fully regenerative and continuous. It had the added feature of a twin radius of turn in each gear. The gearbox, which was based on earlier Maybach types, gave no less than eight forward gear ratios and, with its pre-selector, made the Tiger very light and easy to handle for a vehicle of its size. The Tiger's mechanical layout followed that of previous operational German designs in that the transmission shaft led forward beneath the turret cage to the gearbox set alongside the driver. The steering unit was mounted transversely in the nose of the tank, a bevel drive leading to a final reduction gear in each front sprocket. Power take-off for the hydraulic turret traverse unit, mounted in the turret floor, was taken from the rear of the gearbox, and it is typical of the Tiger's well-thought out design that the hydraulic unit could be disconnected from the power drive shaft by releasing a dog-clutch, thus allowing the turret to be lifted from the vehicle without the complications of disconnecting any other joints or pipes.

Arrangements for wading and total submersion to a depth of 13 feet with Snorkel breathing were introduced on the first 495 Tigers produced, and then abandoned on all subsequent vehicles leaving them capable of wading only to a depth of about 4 feet. The method used for total submersion of the first 495 vehicles was very ingenious. All hatches and doors were rubber sealed and the turret ring was sealed by means of an inflatable rubber tube. The gun mantlet was sealed by a sliding frame, with a rubber sealing ring, and the machine-gun ports were provided with expandable rubber plugs which were inserted when the machine-guns were dismantled. The main air supply for the crew and engine was obtained through a three-piece Snorkel pipe that was mounted on the engine compartment roof when wading.

During submersion the fan drives were disconnected and the radiator compartments sealed off and flooded.



Factory view of early production model Tiger Ausf. H showing a second pistol port in place of the loading and escape hatch. (Chamberlain Collection)



Driver's compartment of Tiger Ausf. H (Ausf. E) showing steering wheel, visor, and instrument panel. (Imperial War Museum)



Hull gunner's position, showing 7.92 mm. machine-gun. This was fired by hand trigger and sighted by telescope. The wireless sets were carried on a shelf to the right of the hull gunner. (Imperial War Museum)

A bilge pump, mounted on the fighting compartment floor and driven by the power take-off from the main gearbox which also drove the power traverse oil pump, was used to pump out any water that penetrated the sealing devices. This bilge pump was retained in the later production vehicles. These vehicles could stay under water for $2\frac{1}{2}$ hours.

CONSTRUCTION

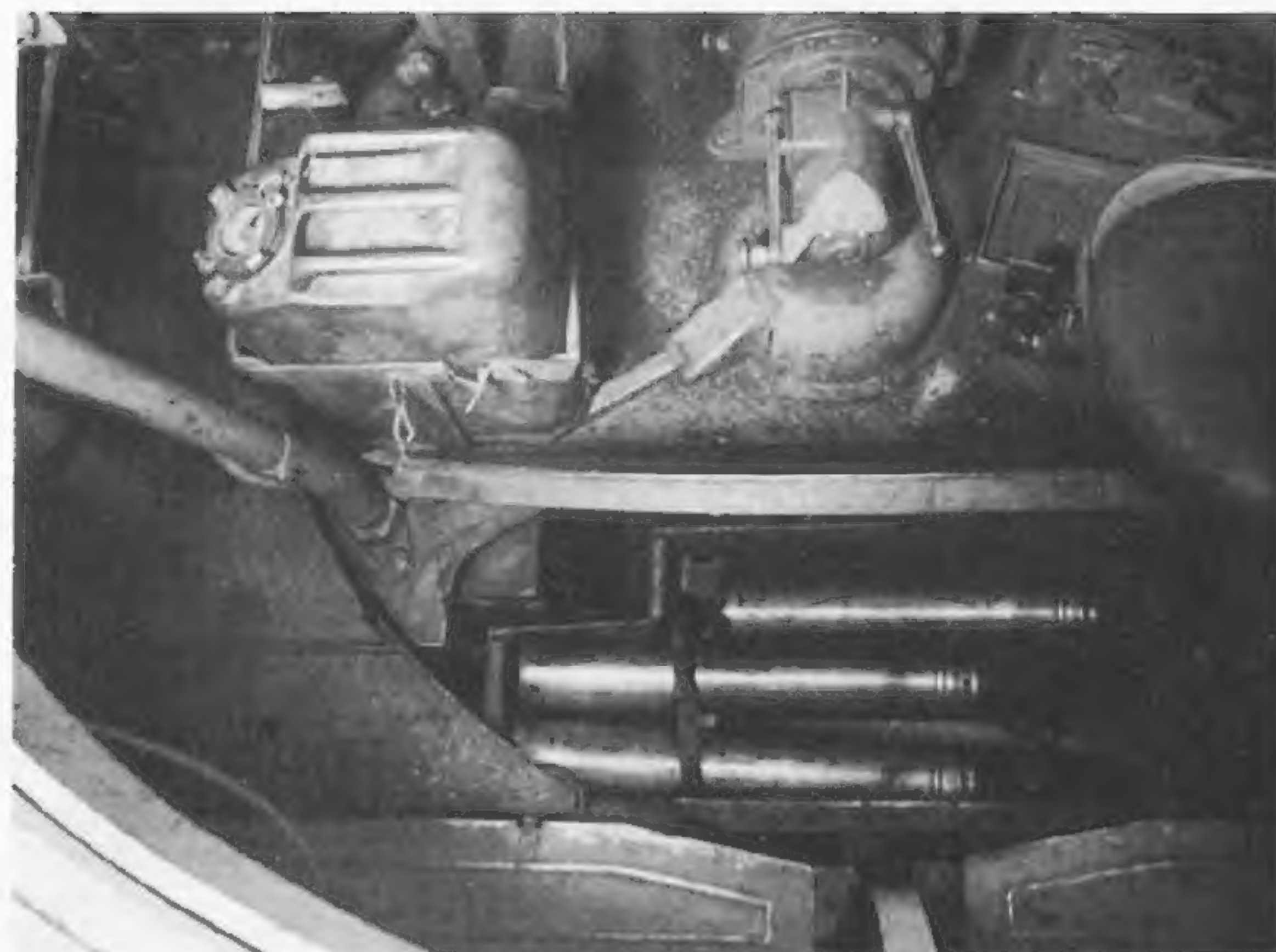
One of the Tiger's biggest advances over any previous design was in its method of construction. In order to simplify assembly as much as possible and allow the use of heavy armour plate, flat sections were used throughout the hull. Machinable quality armour plate was employed. Hull and superstructure were welded throughout, in contrast to previous German tanks where a bolted joint was used between hull and superstructure. The Tiger front and rear superstructure was in one unit, and interlocking stepped joints, secured by welding, were used in the construction of both the lower hull and the superstructure. A pannier was, in effect, formed over each track by extending the super-

structure sideways to full width and the complete length of the vehicle was so-shaped from front vertical plate to tail plate. The top front plate of the hull covered the full width of the vehicle and it was this extreme width which permitted a turret ring of 6 ft. 1 in. internal diameter to be fitted which was of ample size to accommodate the breech and mounting of the 8.8 cm. gun. The belly was also in one piece, being a plate 26 mm. thick and 15 ft. $10\frac{1}{4}$ in. long by 5 ft. 11 in. wide.

Internally the hull was divided into four compartments; a forward pair housing the driver and the bow gunner/wireless operator, a centre fighting compartment and rear engine compartment. The driver sat on the left and steered by means of a steering wheel which acted hydraulically on the Tiger's controlled differential steering unit. Emergency steering was provided for by two steering levers on either side of the driver operating disc brakes. These brakes were also used for vehicle parking and were connected to a foot pedal and parking brake lever. A visor was provided for the driver and this was opened and closed by a sliding shutter worked from a handwheel on the front vertical plate. Fixed episcopes were



Interior of turret, showing breech of 8.8 cm. gun, commander's seat, and traverse handwheel. (Imperial War Museum)



Looking down at the turret floor. Six 8.8 cm. rounds were accessible with the turret traversed to the twelve o'clock position. (Imperial War Museum)

Tiger suspension showing wide battle track. (Imperial War Museum)



Tiger suspension showing narrow track. When this was fitted the outer row of wheels was removed. (Imperial War Museum)



provided in both the driver's and the wireless operator's escape hatches. A standard German gyro direction indicator and instrument panel were situated to the left and right of the driver's seat respectively. The gearbox separated the two forward crew members' compartments. The machine-gunner/wireless operator seated on the right manned a standard 7.92 mm. MG 34 in a ball mounting in the front vertical plate; this was fired by a hand trigger and sighted by a KZF cranked telescope. The wireless sets were mounted on a shelf to the operator's left.

The centre fighting compartment was separated from the front compartments by an arched cross member and from the engine compartment in the rear by a solid bulkhead. The floor of the fighting compartment was suspended from the turret by three steel tubes and rotated with the turret. The breech mechanism of the 8.8 cm. gun reached almost to the inside rear turret wall, dividing the fighting compartment virtually in two.

MAIN ARMAMENT

The 8.8 cm. KwK 36 gun which formed the Tiger's main armament had ballistic characteristics similar to those of the famous Flak 18 and Flak 36 8.8 cm. guns

from which it was derived. The principal modifications were the addition of a muzzle brake and electric firing by a trigger-operated primer on the elevating handwheel. A 7.92 mm. MG 34 was co-axially mounted in the left side of the mantlet and was fired by mechanical linkage from a foot pedal operated by the gunner. The 8.8 cm. had a breech of the semi-automatic falling wedge type scaled up from the conventional type used on smaller German tank guns. The great weight of the barrel was balanced by a large coil spring housed in a cylinder on the left-hand front of the turret. Elevation and hand traverse were controlled by handwheels to the right and left of the gunner respectively and an additional traverse handwheel was provided for the commander's use in an emergency. The hydraulic power traverse was controlled by a rocking footplate operated by the gunner's right foot. Because of the turret's great weight, traverse was necessarily low-gearred both in hand and power. It took 720 turns of the gunner's handwheel, for instance, to move the turret through 360 degrees and power traverse through any large arc demanded a good deal of footwork (and concentration) by the gunner. "Stalking" Allied tanks—more lightly armoured—were often able to take advantage of this limitation to get in the first shot



Side view of mid-production Tiger Ausf. E shows clearly the loading and escape hatch that was omitted on the early production models.
(Chamberlain Collection)



Rear view of Tiger Ausf. E showing an "S"-mine discharger on the superstructure.
(Chamberlain Collection)



An early production Tiger Ausf. H captured in Tunisia in 1943.
(Imperial War Museum)

when surprising a Tiger from the side or rear. For sighting purposes the gunner was provided with a binocular telescope TZF 9b, a clinometer for use in HE shoots, and a turret position indicator dial. Ammunition for the 8.8 cm. gun was stowed partly in bins each side of the fighting compartment and partly alongside the driver and under the turret floor.

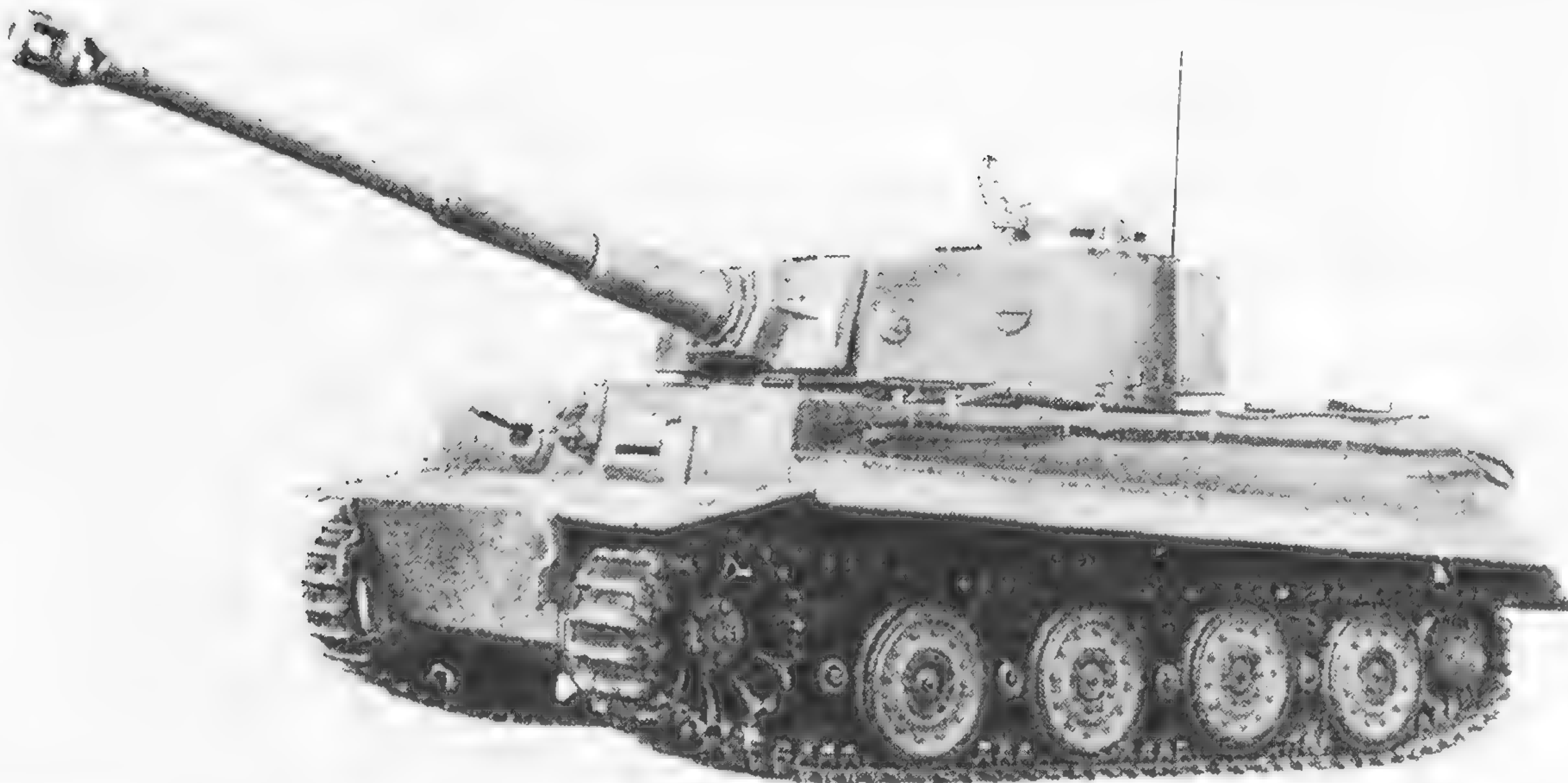
Some early production Tigers were fitted with "S"-mine dischargers on top of the superstructure, a total of five being mounted in various positions on the front, sides and rear. These devices were installed for protection against infantry attacking with such anti-tank weapons as magnetic mines or pole charges. The "S"-mine was an anti-personnel bomb shaped like a jam jar and about 5 in. deep by 4 in. wide; it was shot some three to five feet into the air where it was set to explode and scatter its contents—360 three-eighths inch steel balls.

TURRET

Like the hull, the turret was a simple structure; the sides and rear were formed from a single 82 mm. plate curved horseshoe fashion. The front was joined by two rectangular bars, 100 mm. thick, which were

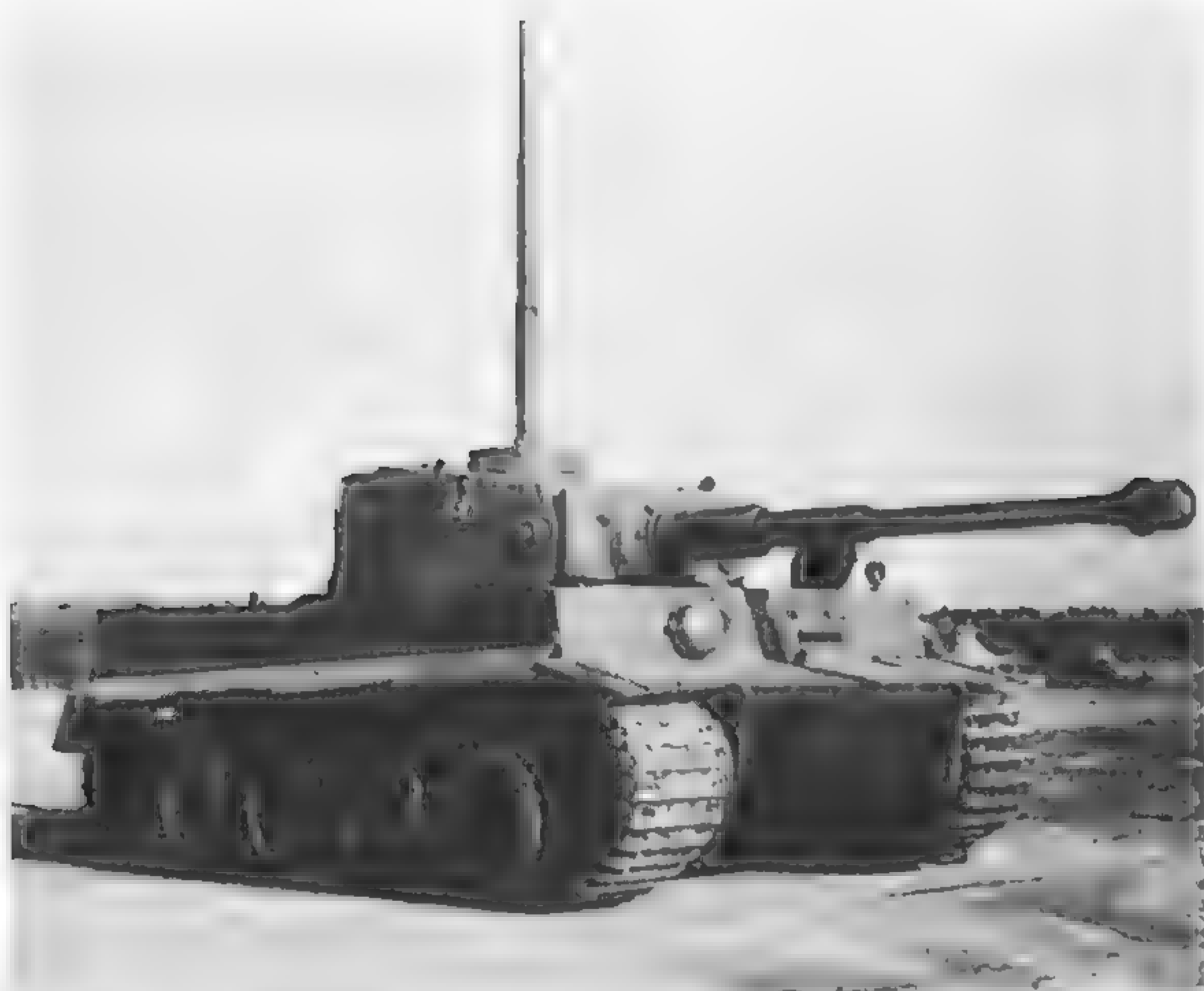
dovetailed and welded to the main turret front plate. The upper and lower edges of the turret sides converged towards the front to allow for movement of the mantlet when the gun was elevated or depressed. The turret roof was a single shaped plate 26 mm. thick, bent slightly forward of the centre line to match the taper of the sides at the front. This roof was recessed and welded into the turret sides. Two types of cupola could be seen fitted to Tigers; the original type had five vision slits and was of plain cylindrical appearance, while the later type had six episcopes and was exactly similar to the type fitted to the Panther. In fact, the adoption of this later type of cupola was yet another instance of production simplification; by late 1943 Panther production was under way and it was decided to standardise on the Panther cupola once stocks of the original Tiger cupola were exhausted. Other external turret fittings were three NbK 39 90 mm. smoke generators on either side towards the front and two stowage bins either side of the centre line at the rear. The bins were used to stow the bedding, rations, packs and other personal effects of the crew. Again, in later production Tigers, the bins were often omitted or reduced to one, not always at the rear.





Late production Tiger Ausf. E with Panther type cupola which has fitting for anti-aircraft machine-gun (Fliegerbeschuss-gerät). Tank has steel-tired wheels. Note absence of Feisel on this late model.

(Chamberlain Collection)



Early production Tiger Ausf. H (Ausf. E) rigged for deep wading.

(Chamberlain Collection)

Late production Tiger Ausf. E on the Russian front

(Chamberlain Collection)





British troops erecting the three-piece Snorkel tube on an early production Tiger Ausf. E captured by the British in Tunisia, 1943.
(Imperial War Museum)

Note the rubber sealing plug over the hull machine-gun ball mount on this Tiger Ausf. E captured in Tunisia—part of the rig for deep wading.
(Imperial War Museum)



TACTICAL EMPLOYMENT

It was intended to use the Tiger as a heavy infantry or assault tank and Tiger battalions were organised as independent units under GHQ troops. Armoured divisions engaged in a major operation would receive an allotment of Tigers to spearhead an attack, but owing to the Tiger's basic lack of manoeuvrability, due to its bulk and relatively low speed, it was always considered necessary to employ lighter tanks in supporting platoons on the flanks. Normally PzKpfw IIIs or IVs fulfilled this function. It was later decided to include Tigers in the basic organisation of armoured divisions but, due to attrition which depleted the number of serviceable Tigers at any one time, it was never possible to put this plan into operation except in *Waffen-SS* armoured formations. These divisions were among the first units to receive Tigers and these went into service with such famous formations as the 1st SS Panzer Division *Leibstandarte SS "Adolf Hitler"*, and the 2nd SS Panzer Division "*Das Reich*". The fact that there were never sufficient Tigers to go round was probably the greatest comfort that opposing forces could take from their appearance.

In the earliest Tiger actions of the war, on the Russian Front before Leningrad and in Tunisia, the employment of these formidable and sinister-looking vehicles was restricted to such limited numbers that resolute action by anti-tank gunners taking full advantage of the situation was more than enough to counter their impact. The first attack by Tigers in Russia in 1942 took place on terrain unsuitable for any successful tank action and, restricted to single-file progress on forest tracks through the swamps, the Tigers proved easy targets for the Soviet gunners posted to cover the tracks.

The British first encountered the Tiger in February 1943, near Pont du Fahs in Tunisia. Having received advance warning of the impending attack, the British anti-tank gunners were concealed with their 6-pounders with instructions to hold their fire until signalled. Two Tigers, flanked by nine PzKpfw IIIs and PzKpfw

IVs, advanced with artillery support and were not engaged until the range had closed to 500 yards on each flank. Fire from the 6-pounder anti-tank battery knocked out both Tigers. Tiger I's epitaph was written in France in 1944 where it finally proved its best not in attack but in defence.

TIGER VARIANTS

Three Tiger Ausf. E variants are known to have been in service.

(1) Tiger Command Tank (Panzerbefehlswagen)

Designated Pz.Bef.Wg Tiger Ausf. E, this version was the normal fighting tank adapted for the fitting of additional wireless equipment. Two sub-variants existed of this Command Tank, SdKfz 267 and SdKfz 268, the difference between these two models being solely in the wireless equipment fitted. The SdKfz 267 carried combinations of the Fu 5 and Fu 8 radio and the SdKfz 268 was fitted with combinations of the Fu 5 and Fu 7.

To accommodate the extra wireless equipment, the co-axial machine-gun together with its ammunition, spares and tools were dispensed with and the ammunition for the 8.8 cm. gun was reduced by 26 rounds. The crew of five consisted of, Commander, Wireless Officer (Gunner), W/T Operator I (Loader), W/T Operator II (Hull Gunner) and Driver.

Fu (Funkgerät=Wireless Equipment).

Fu 5: the standard tank set.

Fu 7: standard ground-air co-operation equipment.

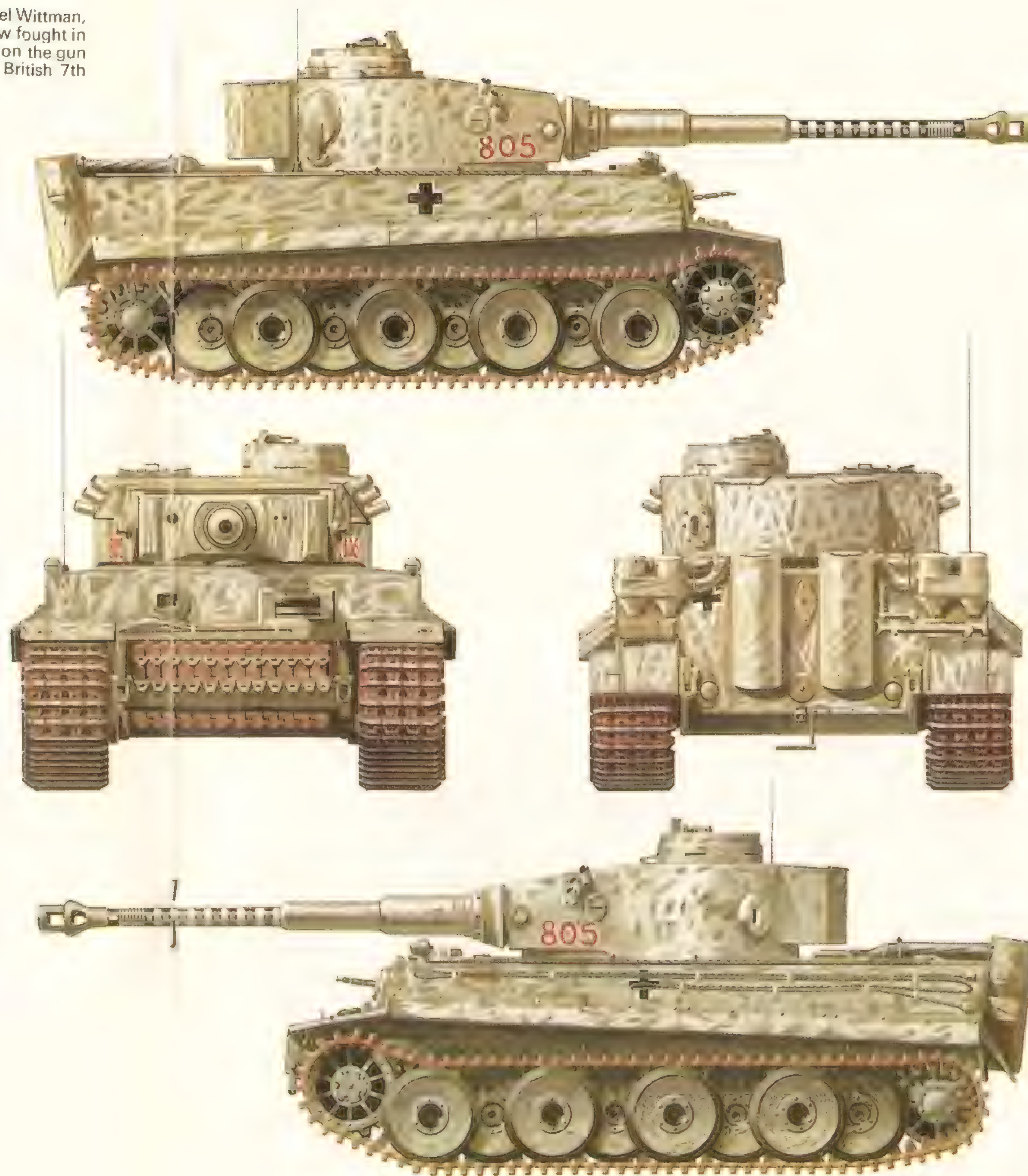
Fu 8: standard set for main divisional links; it had a range of about 6 miles.

(2) Pz.Kpfw Tiger Recovery Vehicle (Berge Pz.Wg. Tiger)

This was not standard equipment but is believed to have been a field workshop modification, a specimen of which was captured in Italy. It was intended as a towing vehicle for assisting crippled AFVs back to an area where repairs could be effected. It consisted of a normal Tiger modified by the removal of the 8.8 cm.

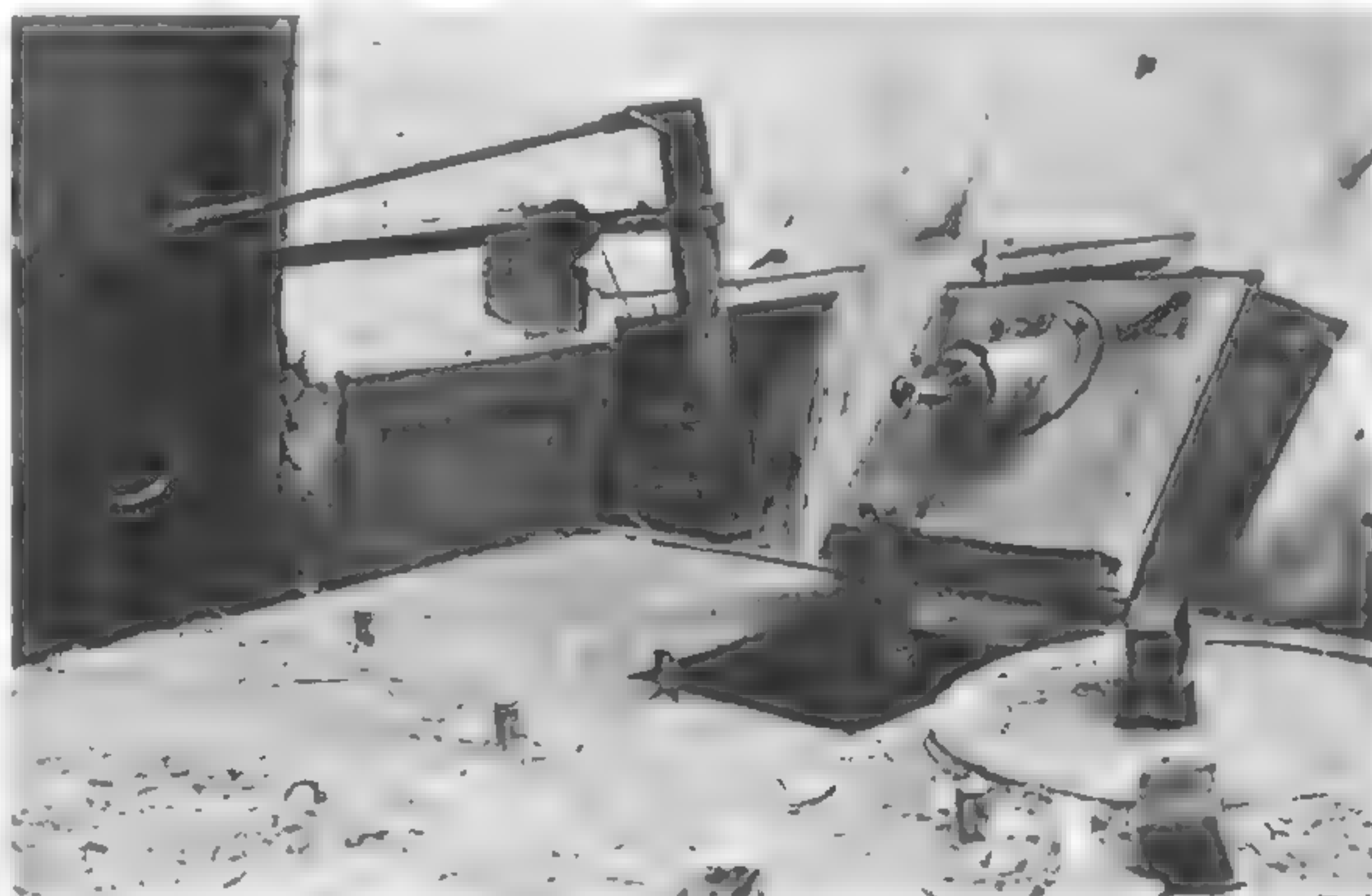
PanzerKampfwagen VI Tiger Ausf.H (SdKfz 181), commanded by Untersturmfuehrer Michel Wittman, of the 1st SS Panzer Division "Leibstandarte Adolf Hitler" in Russia. Wittman and his crew fought in the Kharkov area during the winter of 1942-43, destroying 88 enemy tanks as the tally on the gun barrel indicates. Wittman was killed in Normandy shortly after his conflict against the British 7th Armoured Division on June 13, 1944.

M. Roffe © Profile Publications Ltd.





Side view of Tiger recovery vehicle (Berge Pz Wg Tiger), showing hand-operated winch and wire rope guide. The wire rope can be seen lying on the side of the vehicle. (Imperial War Museum)



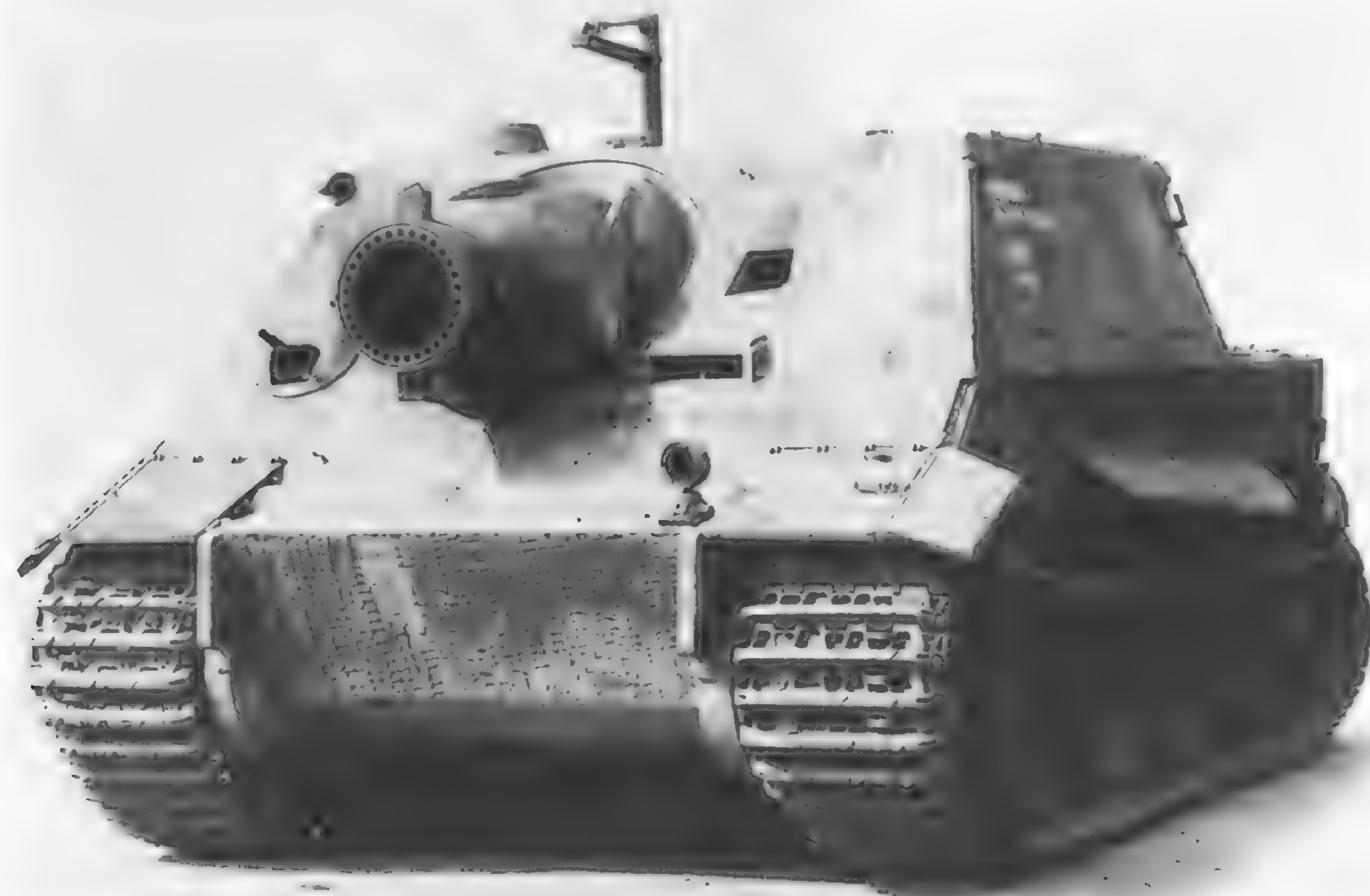
Close up of the Sturm-tiger's loading crane and ammunition stowage hatch. A smoke projector with 360° traverse is mounted in the hatch door. (U.S. Official)

gun and the mounting of a hand-operated winch at the rear of the turret with a wire rope guide at the front. Although the gun and barrel sleeve were removed the mantlet was retained, the opening in its centre being covered by a circular plate with a central aperture for the use of a machine-gun.

(3) 38 cm. Raketenwerfer 61 auf Sturm-mörser Tiger

Also known as Sturm-tiger, Sturmpanzer VI, or Sturm-mörser, this weapon was developed to requirements from the German Army engaged in the heavy street fighting at Stalingrad and other similar places in Russia. The fighting troops had requested a self-propelled 21 cm. howitzer capable of following up the advancing troops and able to engage difficult targets with high angle fire. When development work was started on this project it was decided that the Tiger E chassis would be used, but it was found that no suitable gun of 21 cm. calibre was available. It was finally proposed to use the Raketenwerfer 61 L/54, a 38 cm. rocket projector that had been developed by the firm of Rheinmetall-Borsig as an anti-submarine weapon for the German Navy. A model of the Sturm-tiger was first shown on October 20, 1943 and

Sturm-tiger, showing the 38 cm. rocket projector. Note the perforated ring which allowed the escape of propellant gases. Also visible on the front superstructure plate is, (left) the hull ball mounted machine-gun, and (right) the driver's episcopes slit above which is a large sight aperture for the projector layer's sighting instrument. (Imperial War Museum)

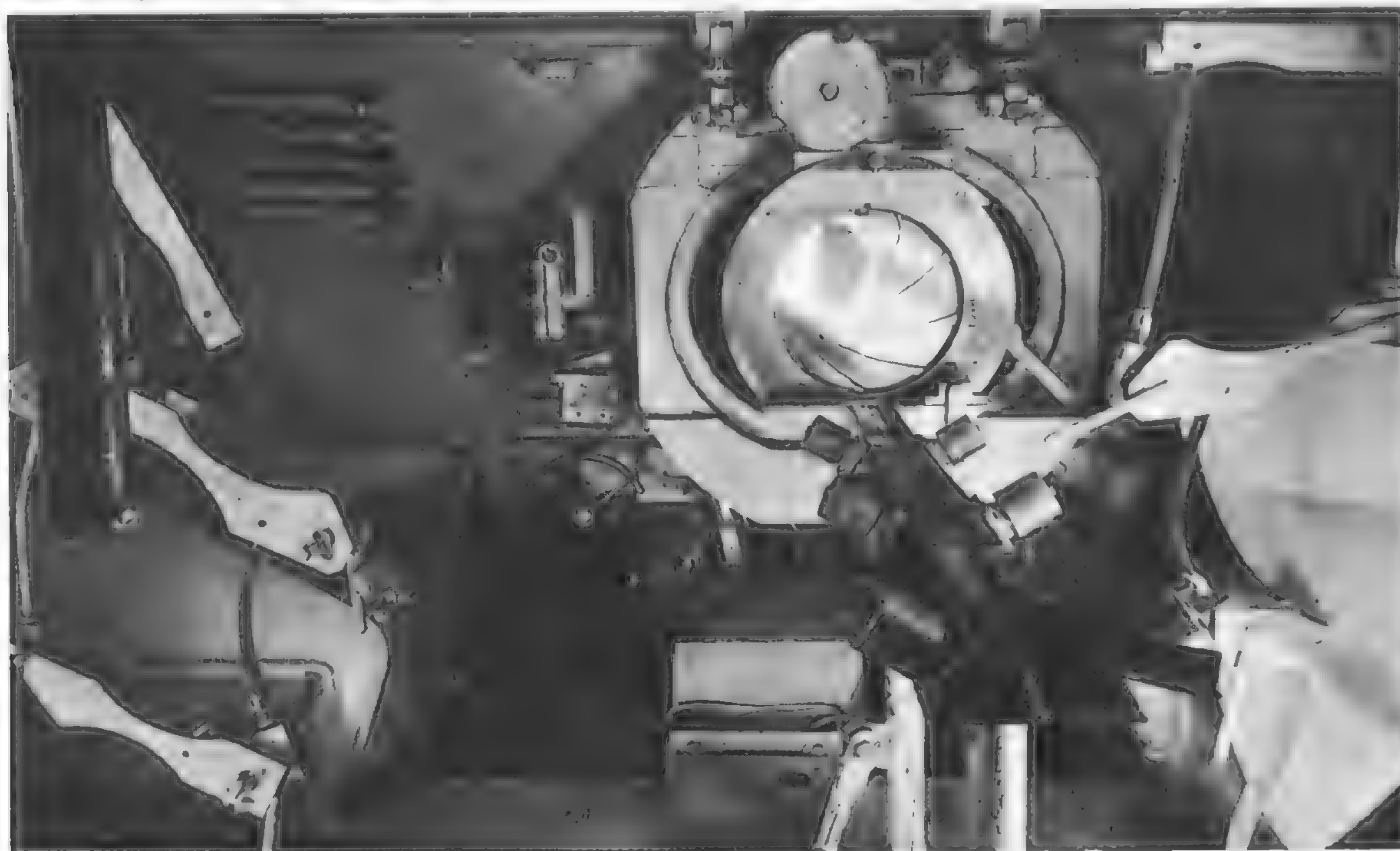




Three-quarter right front view of Sturmtiger showing the ammunition loading crane. On the off-side front of the roof plate is the electric fan extractor (Imperial War Museum)

Interior view of the Sturmtiger showing breech, collapsible loading tray, and ammunition cradles.

(Chamberlain Collection)





PzKpfw VI Tiger Ausf. B (Tiger II) with Porsche turret. Tiger Ausf. B (SdKfz 182) was also known as Koenigstiger (King Tiger, or Royal Tiger).

limited production began in August 1944, a total of 10 Tigers being converted by the Berlin firm of Alkett.

The hull of the Sturmtiger was similar to that of the Tiger E but a fixed turret was superimposed on the hull with a single plate extending upwards from the rear edge of the standard Tiger glacis plate and sloped at 45 degrees to the vertical. The sides extended upwards at 20 degrees to the vertical from the top edges of the normal tank superstructure sides, which they overlapped slightly. The rear plate started at the forward edge of the engine compartment top and was sloped at about 10 degrees. The fighting compartment was roofed in by 40 mm. thick plate. The rocket projector which was breech loaded, was mounted offset to the right of centre in the 6-inch front plate, and fired a 5 foot long projectile weighing 761 lb. to a maximum range of 6,200 yards. A hand operated ammunition stowage crane was mounted at the off side of the superstructure rear plate; this was used to lift the rockets from the supply vehicle and lower them through the roof ammunition hatch into the fighting compartment. There were stowage arrangements for 12 rockets inside the vehicle, six on either side of the compartment; the rockets were stowed horizontally and held in position by collapsible cradles. The roof inside the compartment was fitted with overhead rails to carry a hand operated winch that could be run from side to side to place rockets on the loading tray and also assist in the stowage of ammunition. The rocket was loaded by hand, with the projector set at 0° elevation, from a loading tray fitted with six rollers. This could be folded into the floor when not in use. Additional armament consisted of a ball-mounted machine-gun MG34 set into the front plate on the right side.

The Sturmtiger when combat loaded weighed 70 tons and carried a crew of seven comprising a commander, observer, and five men to operate the vehicle and projector.

Overall Length: 20 ft. 8½ in.
Overall Width: 12 ft. 3 in.
Overall Height: 11 ft. 4 in. including crane.
Speed: 15-25 m.p.h.
Range: Road 87 miles.
Cross Country 55 miles.

SPECIFICATION:

PANZERKAMPFWAGEN VI TIGER 1 (H)

(Desig. from February 1944: PzKpfw VI ausf E.)

Crew: 5—commander, gunner, loader, driver, hull gunner/wireless operator.

Battle weight: 56 tons.

Dry transport weight (narrow tracks): 50 tons 5 cwt.

Ground pressure: 14.7 lb./sq. in. (20.4 lb./sq. in. narrow tracks).

Dimensions

Length overall, gun to front: 27 ft. 9 in.

Hull length: 20 ft. 8½ in.

Height: 9 ft. 4½ in.

Width: 12 ft. 3 in. (10 ft. 4 in. narrow tracks).

Track centres: 9 ft. 3½ in. (8 ft. 11½ in. narrow tracks).

Track width: 28½ in. (20½ in. narrow tracks).

Ground clearance: 1 ft. 5 in.

Armament

One 8.8 cm. gun, KwK 36 mounted in turret; length 56.1 calibres.

One MG 34 7.92 mm. machine-gun mounted co-axially, belt fed.

One MG 34 7.92 mm. machine-gun mounted in hull front, right.

One 9 mm. machine pistol MP 38 stowed in turret.

One Walther 27 mm. signal and grenade pistol stowed in turret.

Six NbK Wg smoke dischargers (2 x 3) mounted on turret sides firing 90 mm.

Fire control

One dial target position indicator fitted in turret ring to left of gunner, driven off turret rack by pinion and universal jointed shaft.

Sighting vane in front episcopes of commander's cupola.

One EM 34 coincidence-type rangefinder for mounting on turret roof; ranges from 200 to 10,000 metres.

One portable SF 14Z scissors-type telescope for mounting in cupola (stowed in roof of turret).

Turret traverse: 360° by hand or hydraulic power; hand traverse by gunner; auxiliary control provided for commander; power traverse controlled by gunner only, by foot pedal.

Elevation: by hand only, controlled by gunner; elevating gear of sector and pinion type.

Maximum workable elevation: 11°.

Maximum workable depression: 4°.

Firing system: electric primer operated by trigger behind elevating hand wheel; power from vehicle batteries (12 volt).

Co-axial machine-gun: fired by rod and pedal from gunner's right foot.

Hull machine-gun: fired by trigger.

Ammunition

8.8 cm.: 92 rounds of mixed HE and APCBC in required proportions.

7.92 mm.: 5,700 rounds in 38 belts of 150 rounds each (maximum stowage).

NbK 39 smoke generators: six rounds (no reloads).

27 mm. signal cartridges: 24 rounds.

9 mm. machine pistol: variable nos.

Sighting and vision

Main armament: one TZF 9b binocular telescope.

Hull machine gun: one KZF 2 telescope.

Commander: five vision slits in cupola. (Later model H and model E with Panther cupola, seven vision blocks.) Pistol port in left-hand rear of turret.

Gunner: one vision slit in left-hand side of turret.

Loader: one vision slit in right-hand side of turret; episcopes in roof hatch (model E only). Loading and escape hatch in right-hand rear of turret.

Hull gunner: one episcopes in escape hatch.

Driver: visor in vertical front plate with sliding double shutter; episcopes in escape hatch.

Communications

W/T set (transmitter/receiver/intercom.): Fu 5 and Fu 2 or Fu 5 only. L/T set.

Armour

Machineable quality armour plate. All-welded construction with stepped inter-locking joints. Austenitic welding.

Hull: nose 100 mm./66°, vertical front plate 100 mm./80°, lower sides 60 mm./90°, upper sides 80 mm./90°, vertical back plate 82 mm./82°, top 26 mm., bottom 26 mm.

Turret: mantlet 110 mm., front 100 mm./80°, sides 80 mm./90°, back 80 mm./90°, roof 26 mm./9°.

Engine

Early model H: Maybach HL 210 P 45. Petrol. 60° V-12 cyl. Water-cooled. 21.35 litres. 650 b.h.p. at 3,000 r.p.m.

Later model H and model E: Maybach HL 230 P45. Petrol. 60° V-12 cyl. Water-cooled. 23.88 litres. 700 b.h.p. at 3,000 r.p.m.

Fuel: 125 gallons in four tanks, two each side of engine compartment.

Transmission

Gearbox: Maybach Olvar pre-selector type; 8 forward speeds, 4 reverse. Ratios: (1) 15.4:1, (2) 10.2:1, (3) 7.15:1, (4) 4.86:1, (5) 3.16:1, (6) 2.11:1, (7) 1.14:1, (8) 0.98:1.

Steering: Regenerative controlled differential type. Epicyclic train to each sprocket. Annulus driven by gearbox output, sun wheels driven from gearbox input. Planet carriers forming output to final drives. Speed and direction was imposed on sun wheels by controlled gearing via hydraulic clutches, giving two radii of turn in each direction in each gear. Steering wheel controlled clutches, hydraulically operated.

Emergency steering: by steering levers controlling disc brakes on each output shaft.

Suspension

Triple overlapping road wheels independently sprung by torsion bars. Outer row of road wheels removable for fitting of narrow tracks.

Right-hand side axles trailed; left-hand side axles led forward.

Wheels: steel disc type with solid rubber tyres (model H). Internally-sprung all-steel disc type (model E).

Track: (wide type) cast manganese steel, 96 links each side; width 28½ in., pitch 5.125 in.; (narrow type) as above, width 20½ in.

Electrical system

One 12 volt dynamo.

Two 12 volt wet cells in parallel (for starting and auxiliary services)

Performance

Max. road speed: 23 m.p.h. Cross-country speed: 12.4 m.p.h.

Max. gradient: 35°. Trench crossing: 13 ft.

Wading depth: 13 ft. (prepared), 4 ft. (unprepared).

Road range: 73 miles. Cross-country range: 42 miles.



A battalion of Royal or King Tigers (Koenigstiger, Tiger Ausf. B, also known as Tiger II) drawn up for inspection.

PART TWO

Tiger II (Ausf. B) "Koenigstiger"

DEVELOPMENT AND PRODUCTION

THE last important German tank development to go into service was the Tiger Ausf "B" or Koenigstiger, known to the Allies as the Tiger II or King Tiger or Royal Tiger. This vehicle was put into production in late 1943 and was first engaged in action on the Russian front in May 1944 and was later encountered by the Allies in France in August of that year. The Royal Tiger had resulted from the need to create a tank capable of dealing with any new tank development that the Russians could possibly produce.

In August 1942, the Heereswaffenamt (Ordnance Department) issued specifications for a redesigned Tiger incorporating thicker armour, sloped plates as on the Panther and Russian T34, and armed with the 8.8cm L/71 gun. Both Porsche and Henschel were asked to submit designs to these specifications.

Porsche re-designed his Tiger (P) to conform to this specification, this design being known as the Type 180. This was projected with a turret forward and an engine at the rear, mounting a 15cm L/37 or 10.5cm L/70 gun. The design was rejected, however, and then Porsche submitted a second type, VK.4502 (P), with a rear turret armed with the 8.8cm L/71 gun, and a forward

engine in a reshaped hull. At first this design was considered for production and the construction of turrets for this vehicle was begun by Wegman AG, but due to the shortage of copper required for the parts in the electrical transmission this tank project was later cancelled.

The first design from Henschel was also rejected, being a modified version of the Tiger I, but the second design offered by Henschel, the VK.4503 (H), was accepted and the first prototype was delivered in October 1943. That this was three months behind schedule was due to the insistence of Waffen Prufamt 6 (Section of Ordnance Department responsible for combat vehicle design) that for simplification of production the vehicle should incorporate several components and design features of the experimental M.A.N. Panther II that had also been projected as an improved Panther tank, thereby achieving a degree of standardisation between the two vehicles.

Production of the Tiger Ausf "B" began in December 1943 when the pilot vehicle was produced. Production models started coming off the lines in February 1944, parallel with the Tiger Model "E", in which month eight Model "B" were produced as compared

with approximately 95 of the Model "E" in the same period. By September 1944 Tiger Ausf "E" production had completely ceased in favour of the new vehicle. By this time production of the Model "B" was scheduled to reach a rate of approximately 100 tanks per month, increasing to 145 per month by December and then continuing at this rate until August 1945. In practice, however, disruption by enemy bombing and shortage of materials reduced the best ever monthly output to 84 in August 1944. By March 1945 this total had fallen to 25. Final total of Tiger Ausf Bs produced was 484.

The first 50 Royal Tigers to be completed were fitted with the spare turrets originally intended for the Porsche Tiger, VK.4502 (P). The remaining production vehicles had a modified turret, specially designed for the Tiger "B", having thicker armour and eliminating the re-entrant angle under the trunnion axis. The introduction of this new turret was accompanied by a change in the gun barrel from monobloc to two piece construction. This new barrel was also fitted to some of the Porsche turret vehicles.

GENERAL DESCRIPTION

The Tiger Model "B" was a logical development of the Tiger Model "E", incorporating all the good points of the Panther tank and armed with a new main

armament, the 8.8cm KwK 43 L/71 which was almost 21ft long. This gun represented the largest calibre and calibre length to be employed operationally by the Germans in a tank mounting during the war. On the early production types the gun was supported on two trunnion supporting arms, bolted to prepared surfaces on the sides of the forward floor of the turret, and the trunnions were bolted to brackets welded to each side of the cradle through which the piece recoiled. On the later production vehicles, the gun was supported on trunnion brackets bolted to prepared blocks 11 inches apart on the forward floor of the turret. The breech mechanism, recoil system and muzzle brake conformed generally to standard German tank gun design, except that the recoil cylinders were mounted side by side above the gun. A hydro-pneumatic balancing cylinder was fitted between the recoil mechanism cradle and the gun mounting. The gun was offset 3.1 inches to the right of the turret centre line. To assist in loading, 22 rounds were carried in a large bulge at the rear of the turret with the nose of the round facing the gun breech so that the round required the minimum of handling in loading. These rounds were stowed 11 per side, thereby providing a clear passage for the ejection of the empty cartridge cases through the hatch at the rear of the turret. 48 additional rounds were stowed



Early production Tiger Ausf. B with the Porsche turret which was distinguished by the bulged commander's cupola on the left side.



Three-quarter right front view of Koenigstiger with Porsche turret, showing the curved front gun mantlet and monobloc gun barrel.

Early Royal Tiger, knocked out in Normandy in 1944, being examined by British troops.





Henschel-turret Tiger Ausf. B with battle tracks and armoured skirting. The tank is covered with Zimmerit to prevent the attachment of magnetic mines.



Royal Tiger with Henschel turret and two-piece gun barrel. This vehicle is equipped with transport tracks.

Rear view of King Tiger, showing drop hatch flap at rear of turret. Part of the armoured skirting has been inserted between the hull and the twin exhaust pipes. This Tiger II has a Porsche turret.



horizontally in panniers on each side of the vehicle's hull. Power traverse was the same as for the Panther and Tiger "E". Two machine-guns, M.G. 34, were carried, one coaxially mounted in the turret and the other in a ball mounting in the front glacis plate. There was also a fitting on the cupola for an A/A M.G. mounting (Fliegerbeschussgerät).

Internally this vehicle followed the usual German layout with the engine at the rear, the driver and bow gunner in the hull, commander, gunner and loader in the turret. The vehicle was well provided with escape hatches and as there was no turret basket it was comparatively easy for the driver and bow gunner to escape through the fighting compartment, or alternatively for the members of the gun crew to escape through the hatches provided for the driver and bow gunner; these consisted of two irregular shaped spring-balanced hatches, one each side above the driver and hull MG operator respectively.

A periscope was provided close to the front edge of the superstructure roof to enable the driver to see. This could be traversed from about 11 o'clock to about 1 o'clock. Part of the top of the glacis plate was cut away to afford better vision. The driver could also drive with his head protruding through his escape hatch, and for this purpose the driver's seat, the accelerator pedal and the steering controls were adjustable. An episcopes set at 12.30 o'clock was provided for the hull gunner close to the forward edge of the superstructure roof, part of the glacis plate being cut away to provide better vision. For the gunner there was a monocular gunsight on the left of the gun, and for the loader there was an episcopes facing forward situated on the right hand side of the sloping front section of the turret roof. This was protected by an armoured shield.

There were installations for the normal German



Close-up of the commander's seven episcopes all-round vision cupola. Clearly shown is the rail and attachment for the mounting of the anti-aircraft machine-gun (Fliegerbeschuss-gerät). Seen also is the turret ventilator.

tank wireless equipment, one transmitter and one or two receivers. The equipment was stowed above the gearbox to the left of the hull MG operator. Intercom facilities were also provided for the commander, gunner, driver and hull operator. An aerial was mounted on the offside of the superstructure roof at the rear.

ARMOUR

The armour, particularly that carried on the front of the vehicle, was the thickest to be employed on a tank that was due for large scale production. The front glacis of 150mm was set at 40 degrees to the vertical, and the nose plate of 100mm set at 55 degrees, resembling in design the Panther rather than the earlier Tiger "E". The side plates of the superstructure, including the turret wall, were 80mm thick and set at an angle of 25 degrees, with the exception of the hull sides which were vertical and the turret front which was rounded. Top and belly plates were 42mm thick and the tail plate 80mm thick. The armour consisted of rolled plates interlocked with the main joints step welded.

TURRET

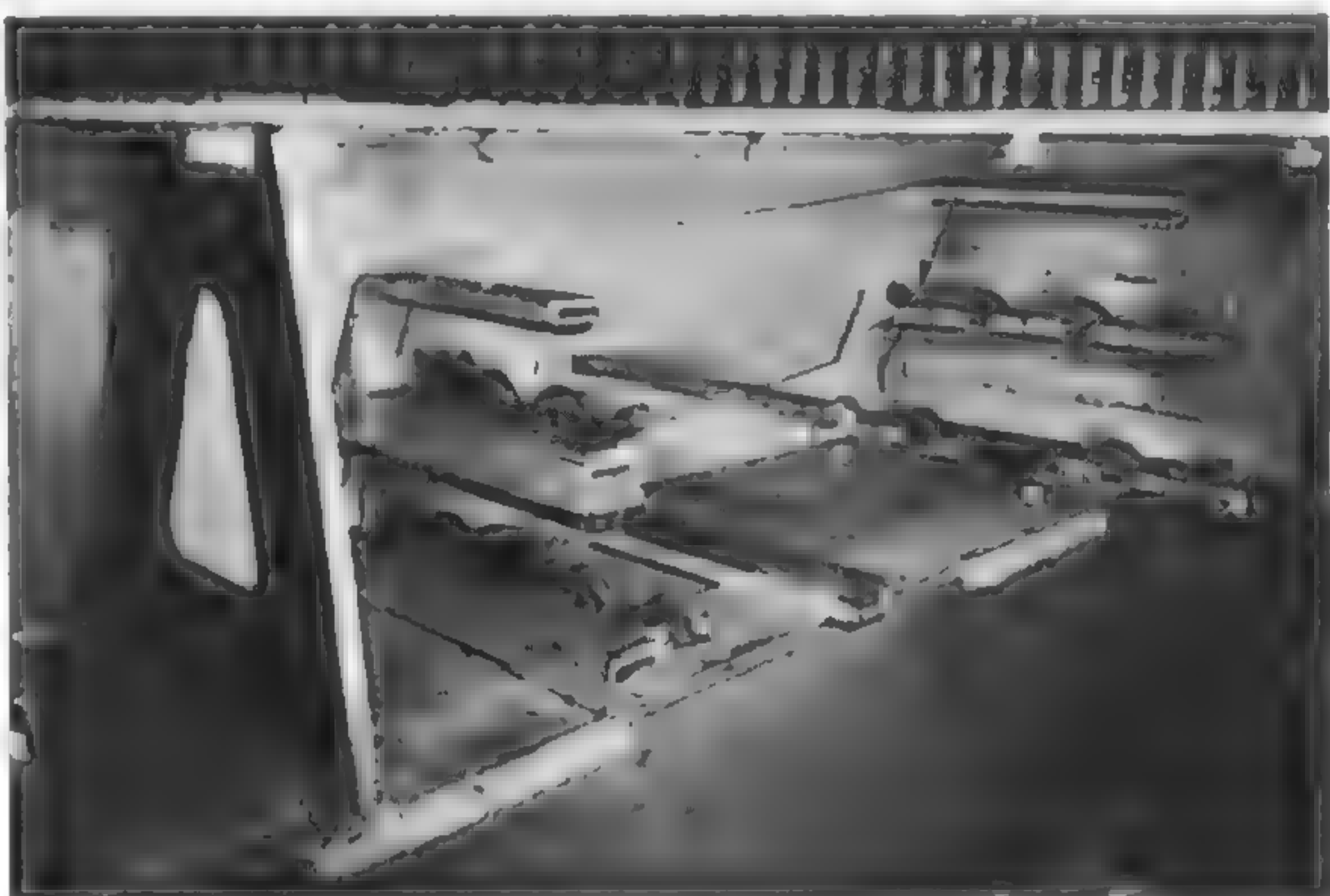
Two types of turret appeared on this vehicle, the first, the Porsche type was some 11ft 6 inches long and incorporated extensive use of bent plates in its manufacture. The front was rounded while the left side was bent vertically to receive the commanders cupola. The second type, which was the main production type, was modified primarily to facilitate production; the turret was made wider and the cupola set in the roof so as to obviate the use of the special bent plate on the left side of the turret. The turret front now consisted of a single flat piece of armour 180mm thick sloped at an angle of 10 degrees to the vertical; the turret front of the Porsche design had consisted of an 80mm plate bent round from the roof to the base. This modification not only made production easier but actually increased the armour protection.

The gun mantlet was also redesigned. Both types were substantially bell-shaped, but whereas the earlier version had a square skirt and was fitted for movement over the cylindrical front surface of the turret, the later type had a circular skirt and was fitted as a socket member over a ball protruberance welded to the turret front plate. The hole for the coaxial M.G. in the early

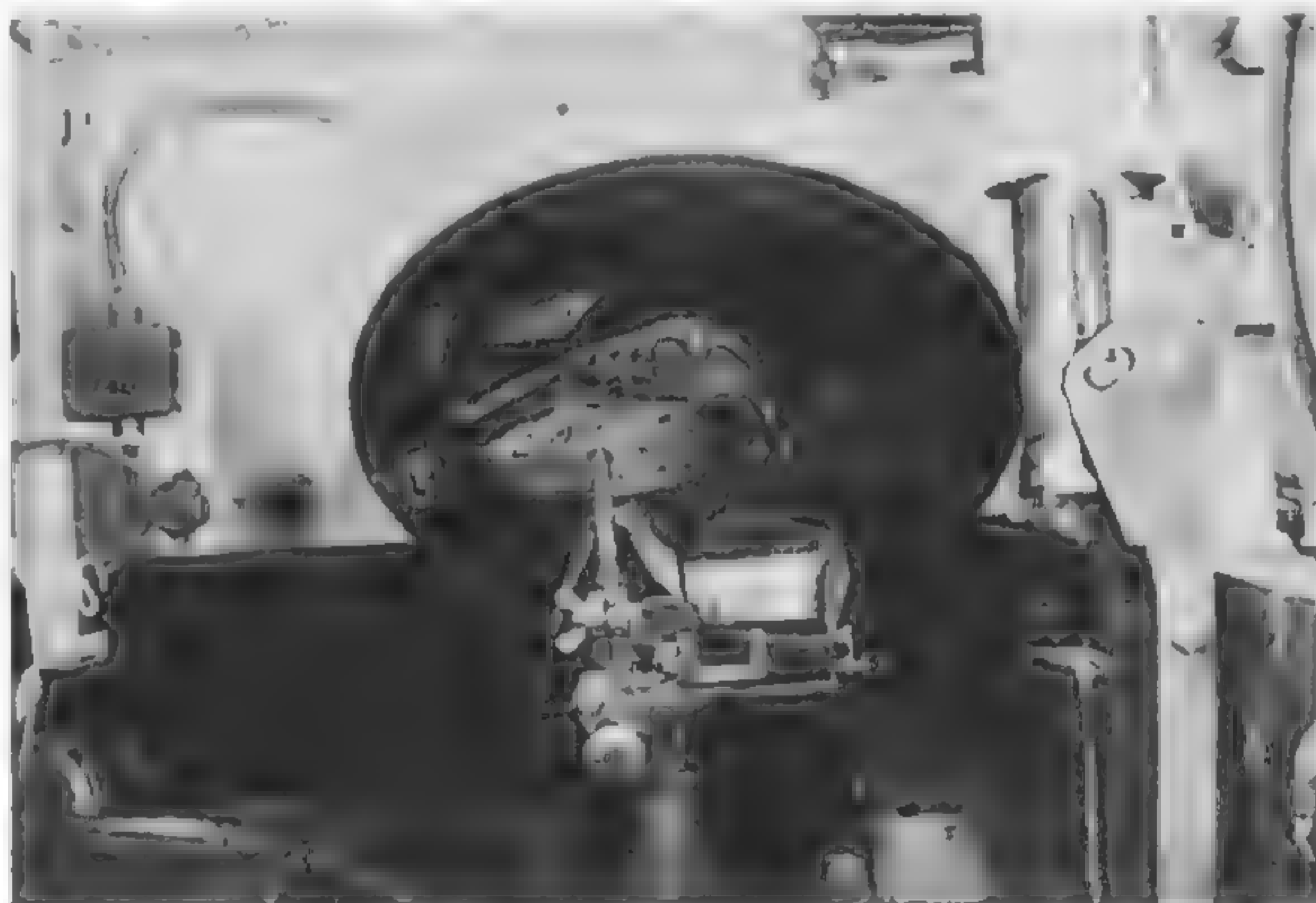


Driver's position. Note the roof stiffener, which was carried into the panniers and attached to the pannier floor.

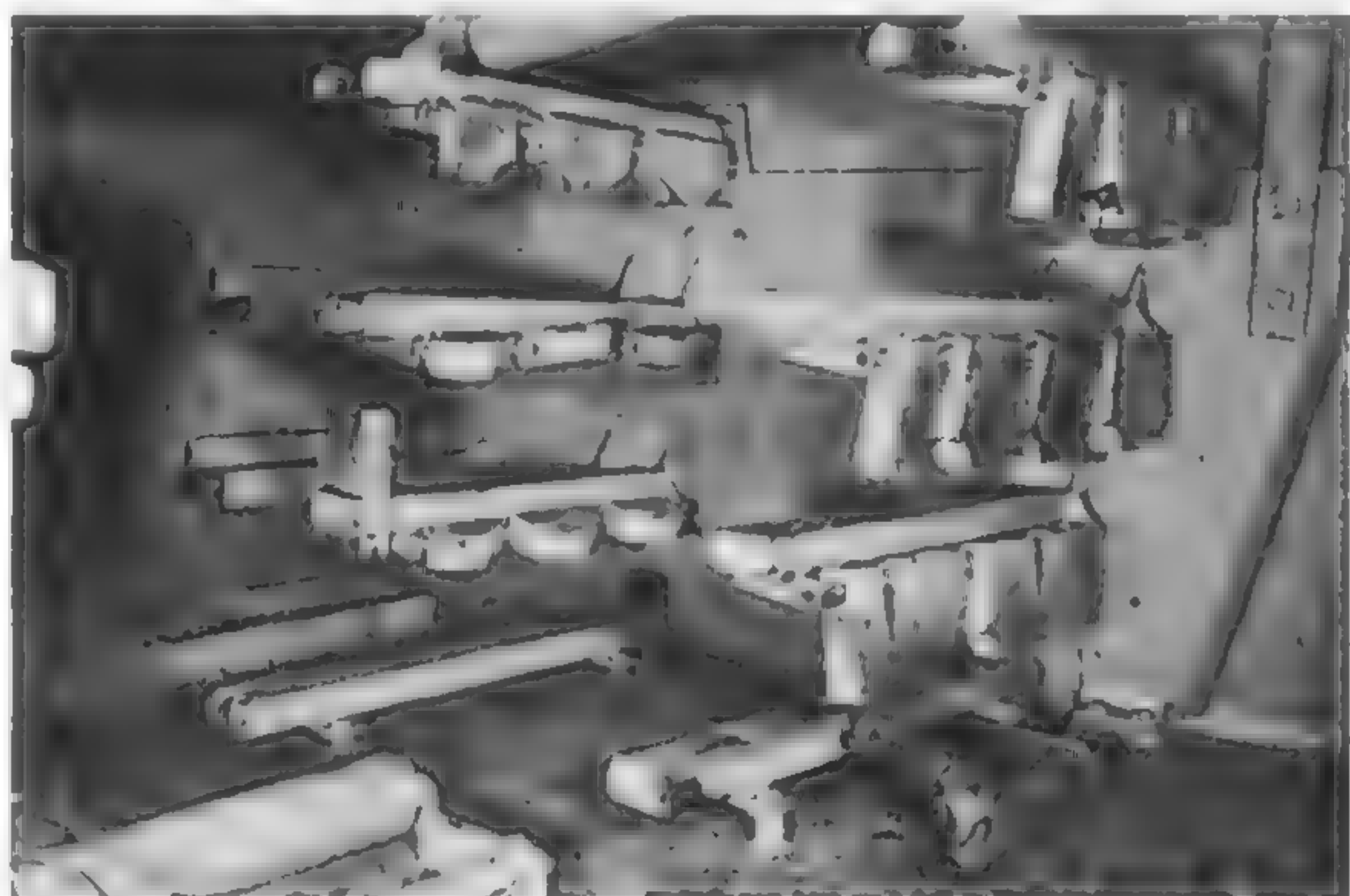
Centre ammunition rack in nearside pannier. Note the bulkhead and the spaced joints between it and the armour.



Hull machine-gunner's position with ball mount. Operating gear for the roof hatch is on the right.



Nearside rear corner of turret showing ammunition racks. The roller on the turret floor (left) was to carry the gun when it was withdrawn from the mounting.





Koenigstiger carrying paratroops as "tank marines" in the opening phase of the Battle of the Bulge in the Ardennes forest, December 16, 1944.

version was a vertical slot in the turret front to the right of the mantlet, while in the late version it passed through the mantlet skirt.

There was only one hatch in the turret wall, a rectangular one at the rear which opened outwards and downwards; this also incorporated a conical pistol port that was closed by a plug attached to a chain. The hatch measured $20\frac{1}{2}$ by $18\frac{3}{4}$ inches on the late version of the turret as against 20 by 14 inches on the early version. The commander's cupola was similar to the type that were used on the late production Panthers and Tiger "E" models. It was fitted with seven episcopes to give the commander all-round vision, and a dished lid that swivelled to the left. A rail for the mounting of a machine-gun for anti-aircraft defence was also fitted.

A smoke projecting device with 360° traverse was mounted on the offside portion of the turret roof, and an electric extractor fan in the centre rear.

Jagdtiger, showing the hull and suspension of the Royal Tiger. At 70 tons this was the heaviest armoured vehicle to see service in World War II.



SUSPENSION AND TRACK

Suspension followed the well-known German arrangement of employing torsion bars as the springing medium. The general assembly of the suspension units was similar to that used by the Tiger Model "E", the only important departure being the use of overlapping bogie wheels as distinct from the overlapped and interleaved system that was used on the Panther and Tiger "E". This change was adapted to simplify the maintenance problems which had been inherent with the interleaved road wheels. Similarly the tendency for the wheels to jam in shingle, or to freeze solid with packed snow was obviated to some extent.

The suspension consisted of overlapping bogie wheels mounted on torsion bars. There were nine axles each side, each carrying double bogie wheels set together; on the first, third, fifth seventh and ninth axles, the wheels were on the outside overlapping those on the intermediate axles. The bogie wheels had steel tyres mounted on rubber cushions. A single torsion bar was attached to each wheel axle by means of a radius arm, shock absorbers being fitted to the front ones. The normal front driving sprocket and rear idler wheel were used.

A new type of track was fitted. This was 2ft 7in wide and consisted of a double pin main link with a connector. The main link consisted of two spuds, each with a chevron pattern set in relief to provide a better grip. The track was provided with two sets of guide horns, the bogie wheels that were fitted on the inside running either side of the inner set, and the outer bogie wheels running either side of the outer set. A narrow loading track (2ft 2in wide) was used for the transportation of the Tiger "B" on rail flats.

VARIANTS OF THE ROYAL TIGER

PANZERBEFEHLSWAGEN TIGER AUSF "B"

A few of the Royal Tiger vehicles were adapted to the role of command tanks (Pz.Bef.Wg.). This was achieved by reducing the ammunition stowage in the rear of the turret and installing the appropriate radio equipment. The command version was also equipped with an additional mast aerial at the rear of the hull. The normal crew was retained, but the loader acted as second radio operator.

THE JAGDTIGER

Following the Heereswaffenamt policy of the time, a limited traverse tank destroyer version of the Royal Tiger was also produced. This vehicle, the heaviest armoured fighting vehicle to go into service, was designated Jagdpanzer VI, Panzerjäger Tiger Ausf B (Sd Kfz 186), or Jagdtiger. It was first shown as a full scale iron model in October 1943 and a total of 150 vehicles was ordered, but due to shortages of components and disruption by bombing only 70 machines were built, 48 of them in 1944.

One of the Jagdtigers was experimentally equipped with the torsion bar suspension designed by Dr Porsche who claimed that his design simplified manufacture, but this design was rejected. It had eight axles each side as against nine in the Henschel design.

The Jagdtiger consisted of the normal Tiger "B" hull with a lengthened suspension and a built-up superstructure to form a fixed turret or barbette. The front plate of the turret was 250mm thick and sloped back at 15 degrees to the vertical; it was made of one piece of solid cast steel. The sides of the hull were combined into one piece with the sides of the turret and like the Tiger "B" were 80mm thick and sloped at 25 degrees. The rear plate of the superstructure was also 80mm thick and was sloped at 10 degrees; this

contained an entry hatch fitted with double doors. The turret was enclosed with a 40mm armoured roof that was secured by bolts. Fittings in the roof included a hatch, ventilator, smoke discharger and sighting devices.

The 12.8cm Pak 80 (L/55) (the most powerful anti-tank gun to be used during the war) was mounted centrally in the front plate within a cast bell-shaped gun shield similar in design to that of the 8.8cm KwK 43 on the Tiger "B". Early production vehicles were armed with the 12.8cm Pak 44 and some of them, because of the shortage of these weapons, were armed with the 8.8cm Pak 43/3 as mounted on the Jagdpanther.

The 12.8cm rounds consisted of a projectile and charge of which there were 38 of each. These were stowed in separate racks inside the fighting compartment. In addition to the normal ball-mounted hull M.G. 34, a simple monopod A.A. mounting for an M.G. 42 was welded to the engine compartment roof. This incorporated a rack and ratchet mechanism by means of which its height could be extended from 44 inches to 68 inches above the engine compartment roof. The vehicle commander, at the right front of the fighting compartment, was provided with a periscope mounted on a circular plate in the roof, with 360° traverse. The plate also contained a rectangular hatch permitting the use of a scissors type telescope.

Weight in action: 70 tons 12 cwt.

Crew: 6, Commander, gunner, two loaders, driver, W/T operator.

Length overall: 34 ft 11½ in.

Width (Battle Track): 11 ft. 10¾ in.

(Transport Track): 10 ft. 8¾ in.

Height: 9 ft. 3 in.

Gun overhang: 9 ft. 5¾ in.

Road speed (max): 23.6 mph.

Cross-country speed (max): 9 to 12 mph.

Radius of action (Road): 100 miles.

Radius of action (Cross-country): 75 miles.

Trench ability: 8 ft. 2 in.

Gradient: 35 degrees.

Vertical step: 2 ft. 9½ in.

Top view of Jagdtiger, showing rotating hatch, and four episcopes located one at each corner of the turret roof. A further periscope with 360° traverse is mounted in the left centre. On the hull front the driver's and hull gunner's periscopes can be seen.

Rear view of Jagdtiger showing double doors of the entry hatch.





Side view of the Jagdtiger that was equipped with Porsche torsion bar suspension. This was distinguished from the Henschel design by its different wheels, different wheel assembly, and by having one less wheel each side—eight instead of nine.

SPECIFICATION – PANZERKAMPFWAGEN VI, TIGER AUSFUEHRUNG "B" (Sd Kfz.182)

Crew: 5, Commander, gunner, loader, driver, gunner/wireless operator.

Battle Weight: Original turret, 67 tons 7 cwt.
Production turret, 68 tons 13 cwt.

Dimensions

Overall length (including gun): 33 ft. 8 in.
Overall width (wide tracks): 12 ft. 3 $\frac{1}{8}$ in.
Overall width (narrow tracks): 10 ft. 8 $\frac{3}{4}$ in.
Overall height: 10 ft. 1 $\frac{1}{8}$ in.
Ground clearance: 1 ft. 7 $\frac{1}{2}$ in.
Track centres (wide tracks): 9 ft. 1 $\frac{7}{8}$ in.
Track centres (narrow tracks): 8 ft. 6 $\frac{3}{4}$ in.
Track width (wide tracks): 2 ft. 7 in.
Track width (narrow tracks): 2 ft. 2 in.
Track on ground: 13 ft. 6 $\frac{1}{2}$ in.

Armament

One 8.8 cm gun, KwK 43, L/71.
One MG 34 (7.92 mm) mounted co-axially.
One MG 34 (7.92 mm) mounted in hull front.
One MG 42 (7.92 mm) mounted on cupola for A/A defence.
One breech loaded smoke mortar inset in turret roof with 360° traverse.

Ammunition

8.8 cm: 80 rounds, (40 APCBC, 40 HE) 22 rounds were stowed horizontally in rear of turret, protected by an 8 mm armour plate spaced about $\frac{3}{4}$ in. from the turret wall. 48 rounds were stowed horizontally in panniers on each side of the hull; these were stowed in three groups on each side, and were divided by 20 mm gusset plates. A further 10 rounds were carried loose.
MG: 5850 (7.92 mm) rounds (39 belts, each 150).

Observation

Cupola with 7 episcopes, and sighting vane on turret roof, opening for episcopes in turret front, and monocular sight to left of gun. Traversing periscope for driver and episcopes for hull machine gunner.

Communication

Fu 5 (Transmitter and receiver) and/or Fu 2 (receiver). Bord (inter-com) for commander, gunner, driver and hull MG operator.

Armour

Homogeneous machinable quality rolled plate except for mantlet and exhaust brackets (cast) and hull MG mount (forged).
Turret Front: 185 mm at 10° (Porsche Turret 100 mm rounded).
Turret Sides: 80 mm at 21° (Porsche Turret 80 mm at 30°).
Turret Rear: 80 mm at 20° (Porsche Turret 80 mm at 30°).
Turret Roof: 44 mm at 80°/90°/80° (Porsche Turret 40 mm at 78°/90°/20°).

Superstructure

Front: 150 mm at 50°.
Sides: 80 mm at 25°.
Rear: 80 mm at 30°.
Roof: 40 mm Horizontal.
Hull Front: 100 mm at 50°.
Hull Glacis: —.
Hull Sides: 80 mm Vertical.
Hull Rear: 80 mm at 30°.
Hull Belly: 40 mm and 25 mm Horizontal.
Thin skirting plates of mild steel extended from the bottom of the superstructure sides to the top of the track and were spaced 2 ft. 11 in. from the hull sides.

Engine

Type: Maybach HL230 P30.
Output (r.p.m./b.h.p.): 2,600/600.
Gearbox type: Maybach-Olvar 401-216.
No. of speeds: 8 forward, 4 reverse.
Steering: Henschel L801 giving 2 radii of turn in each gear.
Drive: Front sprocket.

Suspension

Torsion bar, with overlapped resilient steel disc wheels, nine axles each side. Internal shock absorbers on outer (1st and 9th) axles. Wheels 2 ft. 7 in. diameter, 3 $\frac{1}{4}$ in. thick.

Performance

Max. speed (roads) (m.p.h.): 25.7
Max. speed (cross-country) (m.p.h.): 9–12.
Radius of action (road): 106 miles.
Radius of action (cross-country): 75 miles.
Gradient: 35°.
Trench: 8 ft. 2 $\frac{3}{4}$ in.
Step: 2 ft. 9 $\frac{1}{2}$ in.
Fording depth: 5 ft. 3 in.
Fuel (gallons): 189.
(Fuel disposed in 7 tanks, 2 each side of engine, one behind engine, one each side of fighting compartment).
Chassis numbers for the Royal Tiger were as follows:
Late 1943 early 1944 280001–280050 with Porsche turret, 280051–280066 with production turret.
Mid-late 1944 280067–280400 with production turret.
Early 1945 280401–280484 with production turret.

**A.F.V./Weapons Series Editor:
DUNCAN CROW**

The Porsche Jagdtiger on trials.



AFV/Weapons Profiles

Edited by DUNCAN CROW

FORTHCOMING TITLES:

45 Vickers Main Battle Tank
(publication delayed).

49 Japanese Medium Tanks

Japanese tank development started from 1925. One of the officers of the Imperial Japanese Army concerned with this development from the very outset was Captain (now LIEUTENANT-GENERAL) TOMIO HARA. From his own unrivalled personal experience General Hara in this Profile describes the designing, building, and performance of Japanese medium tanks from Prototype No. 1 (1925-27) through Type 89 (1929), Type 97 (CHIHA) (1937), Type 1 (CHIHE) (1940), Type 3 (CHINU) (1943), Type 4 (CHITO) (1943), to Type 5 (CHIRI) (1944). Also included is a detailed explanation of the year/model designation given to Japanese tanks and the abbreviations used in nomenclatures.

50 Swiss Battle Tanks

Prototypes of the Pz 61, the Swiss Army's Main Battle Tank, were built in 1958 and 1959 and pre-production vehicles with a 90mm gun appeared in 1961: they were designated Pz 58. The Pz 58 was then equipped with a 105mm gun and went into production as the Pz 61. The Pz 68 is a further development. The Profile also includes an account of Swiss tanks since World War I.

BY R. M. OGORKIEWICZ.

51 The Abbot

The Abbot (FV 433 105mm Field Artillery Self-Propelled) is the first British gun designed specifically for the self-propelled role. It was produced to replace the 25pdr field gun and went into troop service in 1965 when the first regiment to be equipped with it was the 3rd Royal Horse Artillery. This Profile by CHRISTOPHER F. FOSS also includes the Value Engineered Abbot and the Falcon Anti-Aircraft System.

52 M47 Patton

by Colonel Robert J. Icks

The tank that missed Korea. M26 M46 } M47 M48
T42 }

53 FV 432

by Christopher F. Foss

The British Army's APC developed from the earlier FV420 series, originally called Trojan.

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by Lieut.-General Tomio Hara

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French Infantry Tanks, Part II

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